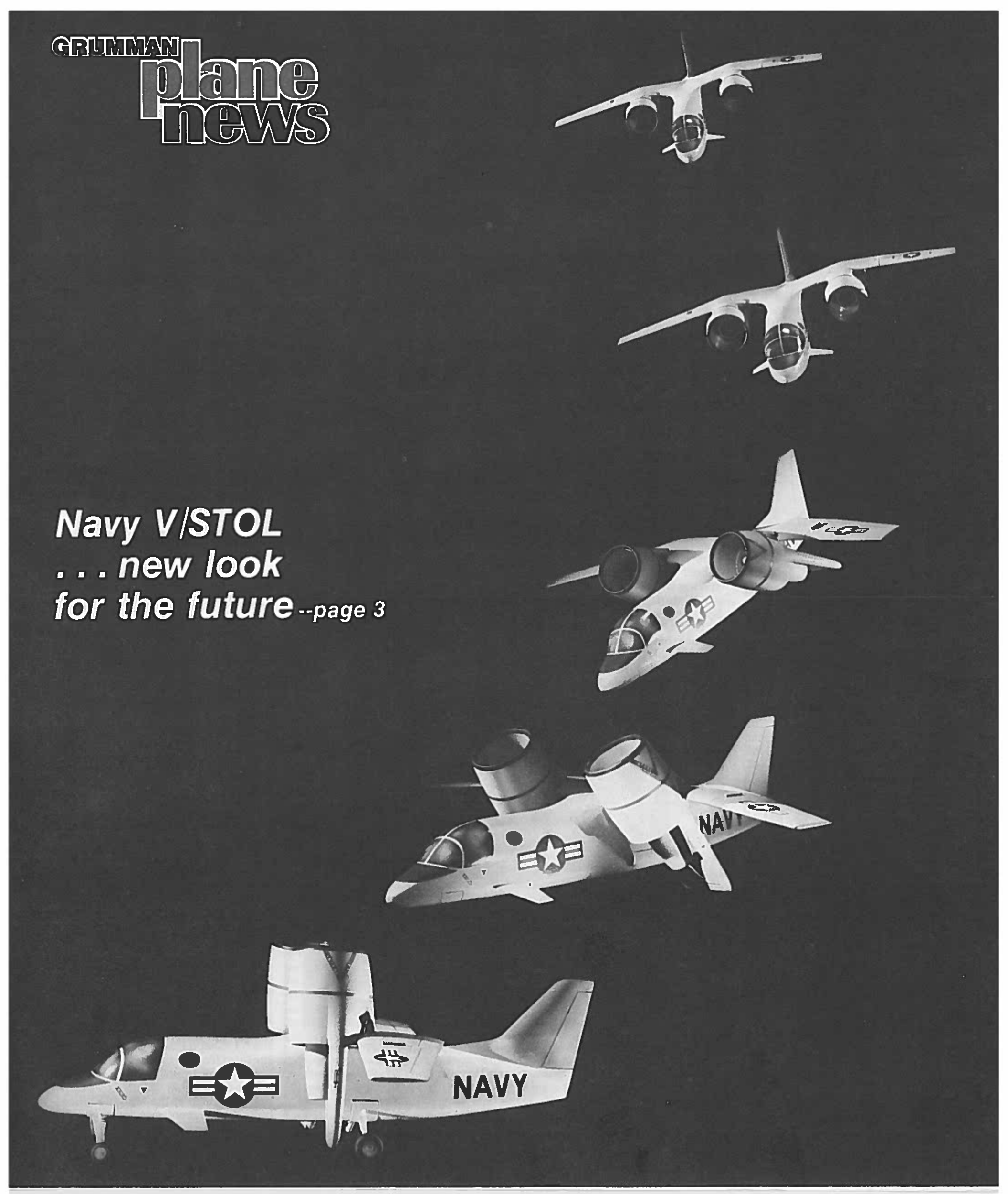
GRUMMAN

plane news



Navy V/STOL . . . new look for the future --page 3

people

Grumman Food Services continues to follow the trend set during the bicentennial year, but in addition to monthly luncheon specials in 1977, there will also be a monthly drawing for Grummanites who dine in the cafeterias and buffeterias.

Anyone who ordered the regular daily specials or January's "F-14 Special"—it featured a succulent steak—was eligible for the first drawing.

The 18 lucky winners of F-14 models were (plants in parenthesis): Frank Colla (15), Bill Driscoll (3), Ned Kozyreff (5), Tom Butler (6), Bill Ryan (30), Gunter Georgi (35), Fred Albright (40), George Miller (43), Ed Shumski (27), Don Combes (36), George Pontoppidan (4), Gil Parachini (15), Gene Hoff (111), Geoffrey Sparnicht (6), James Selva (7), Albert Russo (FTC), Bernard Simmons (44), and George Quarles (2).

ONE OF MANY. *Jeanne Olsen presents Gene Hoff the F-14 model he won in the first Food Service monthly special luncheon drawings. Seventeen other diners won Tomcat models.*

The February special, a soul food dinner, will be on the February 24th menu. For $1.35, you can treat yourself to a feast of barbeque ribs, blackeyed peas, collard greens, hush puppies, sweet potatoe pie, and a cup of coffee or tea. Look for Food Services' flyers announcing the drawing prizes in the near future.

L.I. roots

While millions watched the television epic, *Roots*, there was one Grummanite whose "eyes were glued to the TV set" with special interest.

Bill Cole, an 11-year veteran of Quality Control in Plant 4, saw his daughter Olivia star in her first major film as Matilda, Chicken George's wife.

She first appeared on the Friday evening telecast. During the next two nights, his daughter aged 40 years. He jokingly says, "Many of my friends said 'As she grew older, she began to look a lot like her father.' "

While this was Olivia's first major film role, her proud father points out that she has been an accomplished actress since high school, performing at the Royal Academy of Dramatic Arts, on Broadway, at Lincoln Center, and for four years on the daytime serial, *Guiding Light*.

Foreign exchange

The American Scandinavian Student Exchange (ASSE) is looking for host families for 250 high school students from Sweden, Norway, Denmark and Finland for the high school year 1977-78.

ASSE is also interested in American students age 16 to 18 who would like to spend a high school year in Scandinavia while staying with a family or spend five weeks during the summer with a Scandinavian family.

Anyone wishing to learn more about this cultural exchange should contact Tarplin, 141 South Windsor Ave., Brightwaters, N.Y. 11718, (516) 666-8404.

Back-seat venture

"Tremendously impressed," is the way Capt. Dick Stratton described his back-seat ride in the F-14 last week. Following a briefing on the Tomcat at Plant 7, Captain Stratton accompanied Cdr. John Donis on an hour-long test flight from Calverton.

While at Bethpage, he spoke to a number of Grumman people at Plant 25, describing his ordeal as a prisoner-of-war in North Vietnam. Stratton, a former A-4 pilot, was shot down over North Vietnam early in 1967 and wasn't released until six years later at the end of hostilities. He is now head of Navy recruiting in the Metropolitan area.

Capt. Dick Stratton

During his talk at Grumman he described his Tomcat flight, and left these words for Grumman men and women: "My congratulations to you for what you've accomplished for the Navy again."

GIFT BEARERS. *Lou Geneve (2nd L standing), deputy director of Supply Operations, led the seventh annual holiday special orphan drive to supply gifts for the children at St. Christopher's Home at Sea Cliff. Pictured with Lou are his helpers (L to R standing) Gene Schearing, Shirley Paschier, Edith Murway, and Edna Linitz. In the front row are Ed Kavanaugh, Dick Erody (Santa), Arnie Pinker, and Ann Skean.*

Apply by March 1 for Fellowships

Applications for this year's Grumman Engineering Masters Fellowship Program are now being accepted.

To be eligible to compete, a person must be interested in hardware design and must be working at Grumman Aerospace at least one year before the start of the 1977 Fall semester.

Fellowship recipients receive full tuition, books, and fees, plus a stipend of $1,200. An additional stipend of $600 is granted for each dependent.

A Grumman Fellow is required to work a minimum of 24 hours per week while attending graduate school, and work 40 hours per week during the summer. A course load (generally nine credits) that will lead to the completion of an engineering master's degree in two years must be maintained.

These grants are for one year and are renewable for the second year. Application deadline is March 1. Contact the Fellowship Office, Plant 28, Ext. 2682 for more information.

Holiday schedule

The 1977 Grumman Aerospace holiday schedule is as follows:

Monday, February 21, Washington's Birthday

Monday, May 30, Memorial Day

Monday, July 4, Independence Day

Monday, September 5, Labor Day

Thursday, November 24, Thanksgiving Day

Friday, November 25, floating holiday

Monday, December 26, Christmas Day

Tuesday, December 27, floating holiday (switched from Christmas Eve day)

Wednesday, December 28, floating holiday

Thursday, December 29, floating holiday

Friday, December 30, floating holiday

Monday, January 2, New Year's Day—1978

Free diabetes tests

A free diabetes screening test is available for Grummanites by appointment through the L.I. Chapter of the N.Y. Diabetes Association in Melville.

Terry Kivelowitz, field director of the L.I. Chapter, says that diabetes is the third leading cause of death in the United States.

Please note that this free testing is not performed at the Melville office, only appointments are arranged.

For an appointment, call 752-1752.

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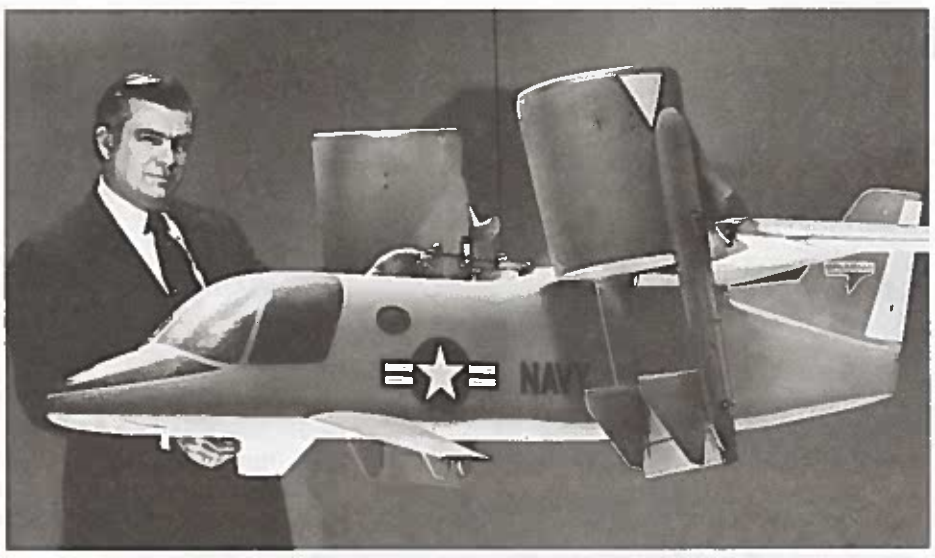

FUTURE LOOK. *Aircraft operating from U.S. Navy ships 20 years from now could well look like this vertical/short takeoff and landing (V/STOL) plane designed by Grumman. Bob Kress, director of Advanced Concepts, is shown above with Design 698 radio-controlled model. Although a production aircraft would be able to hover on only one engine, the scale model has a tether to prevent an accident in the event of an engine failure. (V/STOL photos by Bruce Montgomery)*

Navy looks at new design for future fleet aircraft

Within the next 20 years, vertical/short take-off and landing (V/STOL) aircraft flying off U.S. Navy ships at sea may be as common a sight as helicopters are today, says Bob Kress, director of Advanced Concepts.

The Navy expects these V/STOL aircraft to operate as highly versatile utility aircraft from many types of ships in roles that include early-warning and anti-submarine warfare, cargo delivery to fleet units, and assault-troop transport. Such a broad type replacement program by the Navy could reduce the number of different aircraft now required for the same activities.

Kress states that Grumman is now developing a twin-jet plane that could well be the forerunner of these future fleet aircraft.

Simple, versatile

The Grumman Design 698 combines two characteristics most important in a V/STOL—simplicity and versatility—that make it a promising solution for the Navy requirement.

Its simplicity lies in the fact that all the necessary V/STOL design ingredients are incorporated in the engines and their nacelles (housings), says Kress. The tilting engines, called "V/STOL nacelles," operate over a 90-degree range and provide the necessary power for vertical and forward flight as well as control of the aircraft in all directions.

By actuating miniature horizontal vanes that are immersed in the blast from the jet engine behind the nacelle, a pilot can climb, dive, or turn the aircraft.

Grumman has been demonstrating the practical application of this concept with radio-controlled models since late last year, and in the next month will begin ground testing at Bethpage of a near full-scale engine and nacelle with control vanes to further demonstrate its V/STOL design.

The plane's high-wing design permits the wing-nacelle assembly—the most expensive and complex portion of the airframe—to be fitted on a variety of different fuselage configurations.

Grumman engineers believe Design 698—though still in its development stage—provides the natural versatility required to fulfill the many roles and missions the Navy envisioned for its Type "A" V/STOL aircraft.

Training Systems wins $1.75-million B-1 pact

The U.S. Air Force Systems Command has selected Grumman Aerospace as one of two contractors for the design of the B-1 Aircrew Instructional System (AIS). It is the first of a three phase B-1 AIS procurement program. Boeing Aerospace Company was also chosen for the task.

According to Vice President Alex Alexandrovich, director of Training Systems, this $1.75-million award marks the first weapon systems training systems contract Grumman has received from the Air Force.

The B-1 AIS is being developed to assist in the training of four-man aircrews who will be manning the new strategic bomber.

"Aircrews will be able to 'fly' complete missions in the trainers," says Joe Stump, program manager. "AIS will not only reduce the use of the actual B-1 aircraft for training and save fuel, but by simulating 'emergencies' in the trainer, aircrews will be better prepared for actual flight emergencies."

According to Stump, the B-1 AIS program consists of three major trainers:

Weapon System Trainer—This full-scale B-1 cockpit simulator will provide realistic training for an entire four-man crew. The simulation includes a six-degree of freedom motion system, a computer-generated visual scene, and a digital radar landmass simulator system.

Procedures Trainer—This four-station trainer will enable B-1 aircrews to become familiar with all facets of normal and emergency procedures during flight and ground operations.

Avionics Software Trainer—This trainer will be designed to provide both the offensive and the defensive systems operators experience in the B-1's airborne software (computer programs) logic.

Under the contract, Grumman Boeing will develop a detailed training system design and a proposal for development of the B-1 AIS.

One contractor will then be selected by the Air Force to proceed with Phase II, and will complete design work, fabrication, testing, delivery and support for one set of prototype devices. The Phase II contract is currently slated for award in early 1978.

Production options are expected to follow Phase II. Present Air Force B-1 AIS procurement plans include 15 weapon systems trainers, a four-station cockpit procedures trainer, and six avionics software trainers.

GRUMMAN plane news

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Dalva succeeds Zusi at Stuart Operations

On February 1st, Vice-President Ed Dalva became the new general manager of Stuart Operaions at Plant 77, Florida. He succeeds Vice-President Jim Zusi who is retiring after 38 years with the company.

Dalva, a long-time Grummanite of 36 years, feels his new assignment will be a "challenging" one. Making the move from Long Island to Florida will be an entirely new experience for the former director of Long Island Production Operations; he and his wife Peg, who were both born and raised on the Island, have never made a move—"quite a logistical feat to accomplish." Ed will be "commuting" for the next few weeks.

Dalva feels that Stuart is reminiscent of his early years with the company...that same "close-knit family-type working environment which exists at Stuart and that same growth potential."

Stuart has grown from the company's winter flight test site in the early fifties into a Responsibility Center with a workforce of about 900. At present some of the main activities at Stuart are updating and overhauling Albatrosses, Mohawks, and TC-4C's; manufacturing components for various aircraft programs, including E-2C wings and stabilizers; nacelles and thrust reversers; support test equipment, wiring and harnesses and the F-14 aft fuselage section.

Slate weekend trip to Hershey

The Grumman Athletic Association (GAA) is offering a weekend excursion to Hershey, Pa., on March 11-13.

According to GAA, Grumman employees, retirees, and their families and friends are eligible to register for the three-day trip.

The package costs $99 per person and includes: round trip bus transportation, two breakfasts, two dinners and two nights accommodations at the Hershey Hotel.

The cost also covers admission to the Kitchen Kettle, the Wax Museum, an Amish house and farm, the Farmers' Market, Hershey Chocolate World, the Clock Museum, and Founder's Hall.

For more information, contact GAA on Ext. 2133/2269.

Offering Grummanites $200 rebate on Sunstream

Grummanites who purchase a Sunstream Domestic Hot Water Solar System during March will get a $200 factory rebate, according to Ron Peterson, director of Energy Systems, a division of Grumman Corporation.

The "heart" of the Sunstream system is the solar collector panel that absorbs the sun's energy from a location on the roof of a home, on the ground, or anywhere else that is not shaded by trees or buildings.

How it works

To meet any kind of atmospheric conditions, the Sunstream system has been designed to be a freeze-proof year-round system. A non-freezing fluid is circulated in the closed loop by the pump. The fluid flows through the collector absorbs heat and gives it up to a hot water tank as it goes through the heat exchanger. The cold water supply from the main is connected to this tank, and the delivery pipe from it is connected to the existing hot water heating system. Thus, the solar system functions as a pre-heater to the existing system. In sunny weather, the water in the tank can get hot enough so that the existing heater may have no need to come on. However, it will be available to "top off" the hot water temperature in times of poor sun conditions or extra ordinary normal use of hot water by the family.

According to Peterson, a Sunstream solar system could reduce a household's hot water heating bills by over 50 percent.

Two new Sunstream systems go on the market March 1: Model 60AS, suggested retail price of $995; and Model 60AST, suggested retail price of $1,260. The $200 factory rebate will be offered on these two new systems only.

Both systems have two all-aluminum Model 60A solar collectors; an 80-gallon, glass-lined steel storage tank with heat exchanger; a thermostatic controller; circulating pump; check valve; anti-freeze and fittings. Both have a limited one-year warranty on parts and labor.

Sunstream Model 60AST also includes two hose bibs for easy filling and purging during installation, and encased enameled steel storage tank lined with three-and-a-half inch (R-11) fiberglass insulation. All components in this model are factory installed and assembled on the storage tank, including interconnecting plumbing and wiring.

How to apply

If you wish to participate in the rebate program, contact your nearest Sunstream dealer, who can also provide installation service if desired.

Should you buy a system, send your name, a copy of your bill of sale and completed warranty with your badge number (of Model 60AS or Model 60AST) to: Richard Henkel, Grumman Energy Systems, Plant 47, 4175 Veterans Memorial Highway, Ronkonkoma, N.Y. 11779. Your $200 rebate will be mailed to you within 30 days of receipt.

Information on the Sunstream systems and a list of dealers are available at all Employee Services (ES) offices.

Be careful of oven fires

Fire fighters may encounter many dangers when responding to smoke overload alarms in self-cleaning electric ranges, according to Safety experts.

The self-cleaning electric ovens operate on the principle of pyrolysis, in which leftover food deposits are burned in a high-heat, low-oxygen atmosphere. The inside of these ovens is heated to 800 degrees Fahrenheit and the food is oxidized and reduced to ashes. The oven door is automatically locked closed during the cleaning cycle. A device is used in the oven vent to prevent smoking.

Occasionally, a homeowner will leave a plastic-handled utensil or excessive grease or dirt in the oven, and large amounts of smoke from the pyrolizing materials will overload the smoke eliminator.

Reports indicate that fire fighters who respond to these calls often pry the oven door open and release the smoke, but the General Electric Company warns against that. That procedure usually releases dense smoke into the kitchen and can result in a flash fire when oxygen enters the oven.

GE recommends the following steps for dealing with smoke overloads in self-cleaning ovens:

- Do *not* pry or force the oven door open.
- Turn the controls to the "off" position and let the oven cool. Any flames in the oven will remain contained.
- Open the kitchen windows and doors to vent the smoke.
- After the oven has cooled about an hour—or when the lock indicator light goes off—open the oven door by pressing the latch release button.
- The burning object or excessive grease can be removed, and the cleaning cycle restarted.

PLAQUE PRESENTATION—*Lt. Cdr. Ben Liner (2nd L), Lt. Cdr. Mike Currie, and Lt. Cdr. Jim Maynard, all of VA-35, are honored with plaques from GAC rep Dick Cronin for 1,000 hours of flying on A-6. During ceremony, Cdr. Ronald F. Morreau, Commander Air Group Eight, presented Cdr. Brian K. Bryans (L), skipper of VA-35, with scroll from Vice Adm. Howard E. Greer, Commander Naval Air Fource, U.S. Atlantic Fleet, honoring the squadron's six years and 25,000 accident-free hours in A-6. (U.S. Navy photo)*

Appoint Scheuing director of Research department

Dr. Richard Scheuing was appointed director of Grumman Aerospace Research Department on February 1 to succeed Dr. Charles Mack who will hold the newly created post of chief scientist for the company.

Scheuing joined Grumman permanently in 1948 after completing his master's degree in aeronautical engineering at MIT, but, as he says, "I met the company before that. I was in the first group of Grumman scholarship students in '44. And though I've been associated with Grumman a long time, it seems like I started only yesterday."

Dr. Dick Scheuing

For the past 15 years he's been deputy director of Research. During that time he also earned a doctorate in Aeronautics and Astronautics at NYU, completing his studies in 1971.

As director of Research, Scheuing's responsibility is the entire spectrum of research activity necessary to fulfill corporate objectives for current goals and also to provide a base for entering new fields of interest.

For example, current programs involve transonics, infrared detection of rocket exhausts, pattern and target recognition, nuclear detection, fusion, and space experiments that tie in directly with corporate objectives on the advanced tactical fighter, V/STOL, military space, energy, and NASA space.

Long view

Although of longer range, some research activities that have wide appeal today, Scheuing says, cover such investigations as uranium enrichment, sensors for discovering uranium ore, and finding other energy sources to replace man's reliance on fossil fuels.

Considering the technical accomplishments of the Research Department the past year and its 32 new contract awards, worth $1.5 million, he says, "We not only look forward to doing as well in '77, but hope to exceed those accomplishments."

Attention students

Application forms and general rules for the Grumman Tuition Reimbursement Program are now available at all Employee Service (ES) offices and Field Service Administration offices.

Students are reminded that applications for the spring semester must be filed with the Tuition Reimbursement Office, Dept. 327, Plant 39, within 30 days of the school's last date of registration.

Suggestions bring rich bond harvest

Some heavy thinking by 95 Grummanites will save the company an estimated $2.4 million this year. These Project Sterling award winners for January thought about their jobs and came up with better ways to do them.

Topping the idea list is Eursel Logan, a millwright at Plant 58, Sterling, Va. He came up with a better method to mill F-14 wing skins in one third the usual time.

Logan says, "Project Sterling's a great idea. It's an incentive program that makes it worthwhile to do something about problems on the job." He won't have any problems about what to do with the $1,250 bond award, either. His wife Pat already has the Florida maps out, says Logan.

Close behind the January top award winner is Richard Fox, leadman in Electric Box and Panel Fabrication, Plant 43. Not a newcomer to Project Sterling, he received $1,075 for his latest suggestion which brings his job idea earnings to $2,675.

Fox developed new hardware that improved soldering connections. This minimized rework and reduced production time on F-14 switching assemblies.

He says, "I've always thought about the difficulties we have with soldering panel connections. One day I was playing with the ring assembly connection and the answer hit me. I just figured there had to be an easier way."

George Johns found an easier way. Johns, an installer in Hydraulics, Plant 1, submitted a suggestion that saved the F-14 program weight, time, and material.

He installs hydraulic lines on the port engine inlet. Each of the eight hydraulic lines requires separate cryogenic joints, but due to Johns' suggestion, only four connections now have to be made.

Johns, two years with Grumman and single, says, "This is my first award. I had no idea my suggestion would earn $950 in bonds. I'll probably put the bonds in the bank and get the full value."

Cliff Schilling gets full value from plastic scrap. A plexiglass leadman at Plant 66, Milledgeville, Georgia, he introduced a newer method for scrap to be returned to the vendor for recycling.

A first year's savings of over $9,500 has been projected and Project Sterling has recommended a $950 award for his insight.

Other award winners are:

$400 — George Maune, Templates, Plt. 16.

$300 — Otto Peters, Req. Plng., Plt. 30.

$275 — Willie Bishop, Honeycomb Bonding, Plt. 3.

$250 — Richard Migliorisi, Hydraulics, Plt. 2; John Knespler, Conv. Mach., Plt. 3; Paul Batten/Rudolph Werns, both of Flt. Avionics, Pl 7; and Anthony Cipriani, Prod. Supervision/John Falque, Mech. Struct. & Assy., both of Pl. 43.

$200 — Richard Migliorisi, Hydraulics, Pl. 2; Paul Tressa, Config. Data. Mgmt., Pl. 15; Edward Drydol, Insp. Elect., Pl. 44; and Russell Moll, Front Section, Pl. 77.

$150 — Jose Fernandez/Edward Essig Jr./Moses Smith Jr., all of Hyd. Dept., Plt. 2; Donald Kowalski/Joseph Ambrose, both of Structures, Plt. 6; and George Seeth (since terminated), Fluids, Pl. 6.

$125 — Frank Bollero, Elect. Des., Pl. 1; Bruce Hommel, N/C Mach.; Michael Finn, Parts Paint, both of Plt. 3; and William Harris, Circuit Analy., Pl. 44.

$100 — Lino Olivier, Die Des.; Nelson Vosburgh/Frank Smith, both of Dets. & Subs. Fab. Mgt.; Stephen Scheick, Hydraulics; and Meta Wilson/Barbara Piccione, both of Steel Pts. Assy., all of Pl. 2; John Payton, Static Test, Plt. 5; Ralph Warren/John Adrion, both of Structures; Frank Sabelli, Support, all of Plt. 6; Bernard Braun, Flt. Ops., Plt. 7; Phil Jacknis, Plng., Cntl., Budgets, Plt. 25; Herman Lee, Elect. Final Assy., Plt. 43; and Fred Kahl, Dassault, Plt. 77.

$75 — Richard Scavuzzo, Fluids; James Knipe/Wilfred Kruse/Joseph Pipczynski, all of Support, all of Plt. 6; and Larry Bignami, Production, Plt. 88.

$50 — Joseph Mystkowski, Config. Data Mgt.; Leo Krug (since terminated)/John Lampasone, both of Hydraulics; Harold Johansen; Carl Blahato, both of Fuse. Joining; Charles Randazzo; Eugene Iacona, both of Fuse. Fwd. Sub. & Maj., all of Plt. 1; August Nigl; James Eng, both of Propulsion Test, Plt. 2; Leonard Incandela, Honeycomb Prefit, Plt. 3; Clark Bridgman, Power Plt. Envir. Con., Plt. 6 and Vincent Sardi, Envir. Con. Des., Plt. 25; George Seeth (since terminated); Albert Boehm/Clifford Rudolph, all of Fluids; John Adrion, Structures, all of Plt. 6; Ernest Maines, Flt. Avionics, Plt. 7; Theodore Leutritz, Tech. Req.; Garry Morris, Invent. Cntl.; Edward Zarodkiewicz, Req. Plng., all of Pl. 30; Stuart Tucker (since terminated), Cust. Trng. Vis. Aid., Plt. 39; Barbara Callahan, Conf. Data Mgmt., Plt. 40; and Kenneth Johnson/Domingo Grave, both of Section Splice, Plt. 77.

Certificate of Excellence — Richard Kennard, Mach. Ops./John Soliday, Pts. Cntl.; Charles Stahley, F14 Mfg. Prod.; Joseph Cittadini, Elect. Des., all of Plt. 1; Paul Davis, Fluids, Plt. 6; Eugene Beresford, Flt. Cntl., Plt. 7; Alphonse Tetta, Whse., Plt. 8; George Nadel, PPO—E2C; John Callahan, PPO—E2; Bertram Winston, ILS Digital Engg.; Henry Lobato, Config. Data Mgmt.; William Baker, RF & Video Engg., all of Plt. 15; Kurt Weidig, PPO—F14, Plt. 25 and John Tilford, Adv. Plng., Plt. 1; Bruno Reciputi/Richard Smith/Robert Bevil/John Fritz, all of PPO—F14; John Martyn/William Mishkin, both of ILS—Mech. Eng. Des., all of Plt. 25; Alphonse Pristupe, Gen. Subcontract, Plt. 30/Douglas Grundy/Henry Powers/John Wills, all of Pwr. Plt. Des., Plt. 35/Michael Marcari, Mfg. Tech. Prod., Plt. 1; Salvatore Cappiello, Inv. Plt. Analy.; Frederick Baumeister, Mach. Pts./Raw Matl., both of Plt. 30; Joseph Palmieri, Thermodynamics/Robert DiMarco, Crew/Equip. Integ., both of Plt. 35; Donald Hiestand, ILS Verification & Support, Plt. 40; Warren Bishop, Avionics Purch., Plt. 44; and Kenneth Williams, Production, Plt. 88.

Richard Fox

Eursel Logan

George Johns

obituaries

ROBERT M. CARBEE of Advanced System Tech. Mg./Stf., Plt. 5, died January 24 at the age of 51. He had been with the company since 1948 and resided at 33 Robbins Ave., Amityville.

RODERIC C. PENFIELD of Elect. Harn. Fab., Plt, 44, died January 23 at the age of 26. He worked for Grumman since 1974 and lived at Satterly Rd., E. Setauket.

Personals

I wish to thank all my friends at Grumman for their kind remembrances during my recent bereavement. **Dick Dayton.**

The family of Eugene Reiners wishes to thank all Grumman friends in Plant 3 for their generosity and kindness during our recent bereavement. **Joan Reiners.**

On behalf of my brother Frank's family, I wish to thank Grumman Employee Services and all Grummanites for their kindness and generosity during our recent bereavement. **Nick Bazzicalupo.**

My family and I sincerely thank our friends at Grumman not only for their expression of sympathy during our recent loss, but also for their contributions to the Heart Fund to help others. **Carol Seymour and family.**

We wish to thank our many friends at Grumman for their expression of sympathy extended to us during our time of bereavement. **The family of William A. Bellmer.**

We wish to extend our sincere appreciation and thanks to the Grumman people for their generosity and kindness during our recent bereavement. **Joseph Reiter and family.**

We would like to extend our sincere thanks and appreciation to all our friends at Grumman for their kindness and support during my recent illness. **Kirk Keer and family.**

My son and I wish to sincerely thank all my friends at Grumman generosity, and prayers on the occasion of the loss of my wife, Ruth, **Anthony Repetti.**

To our friends, associates, and Grumman management, we wish to express our sincere thanks for their concern and help during Don's hospitalization and recovery. **Don and Jean McIver.**

My family and I wish to thank all of my friends and co-workers for their kindness and generosity at the time of my illness. **J. Malich.**

My son and I would like to thank all the Grumman people for their kindness during our sorrow. Our consolation is in the help and understanding of our friends. **Dick Wessmuller and son.**

Open phone line for deaf

Hundreds of thousands of telephone calls are made every day on Long Island but some are being made from Grumman these days that transmit messages by sight rather than by sound.

There are 27 deaf men and women working at Grumman, in 11 plants on Long Island. But being deaf, they could never use company phones to call home before except through a third person at each end of the line.

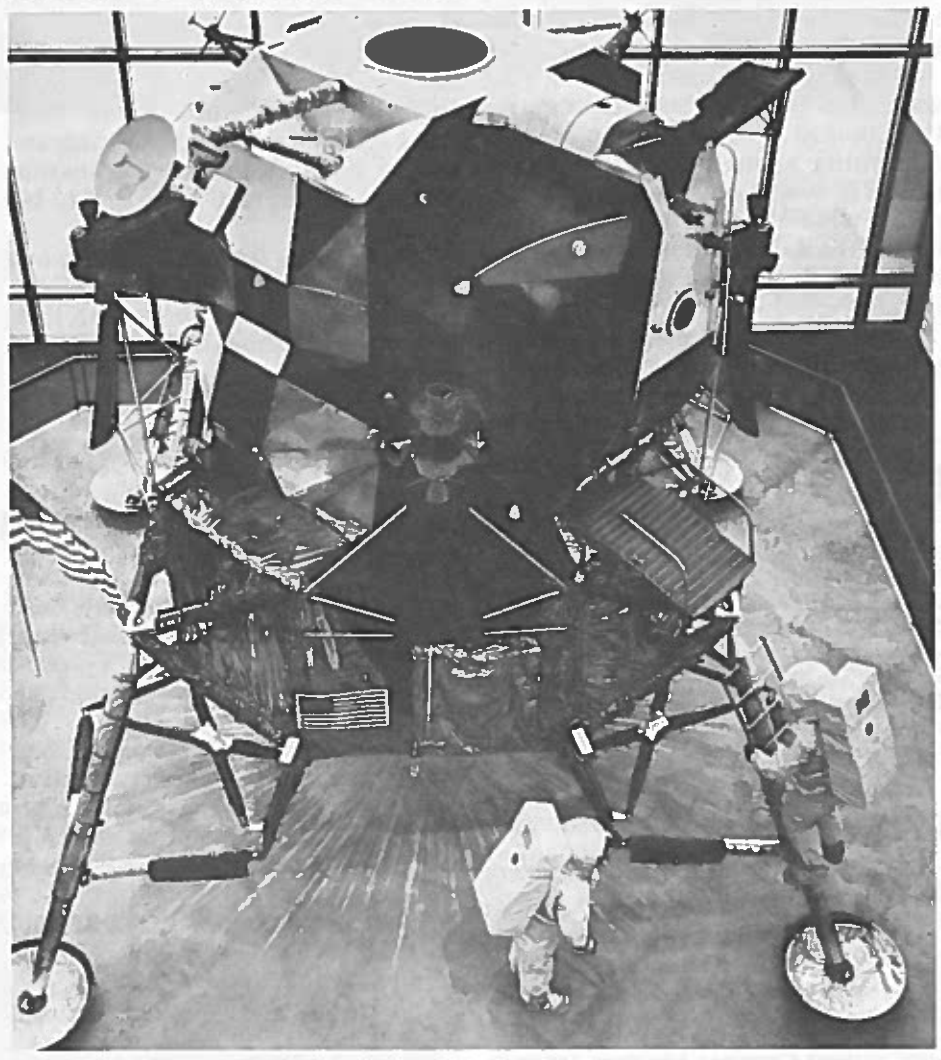
But now it's different. Recently Grumman installed a telephone typewriter called MAGSAT—similar to those some deaf people have in their own homes—in the Records section of Plant 28. With it, deaf people can communicate with one another, and other individuals who can hear can also use it to communicate with deaf people.

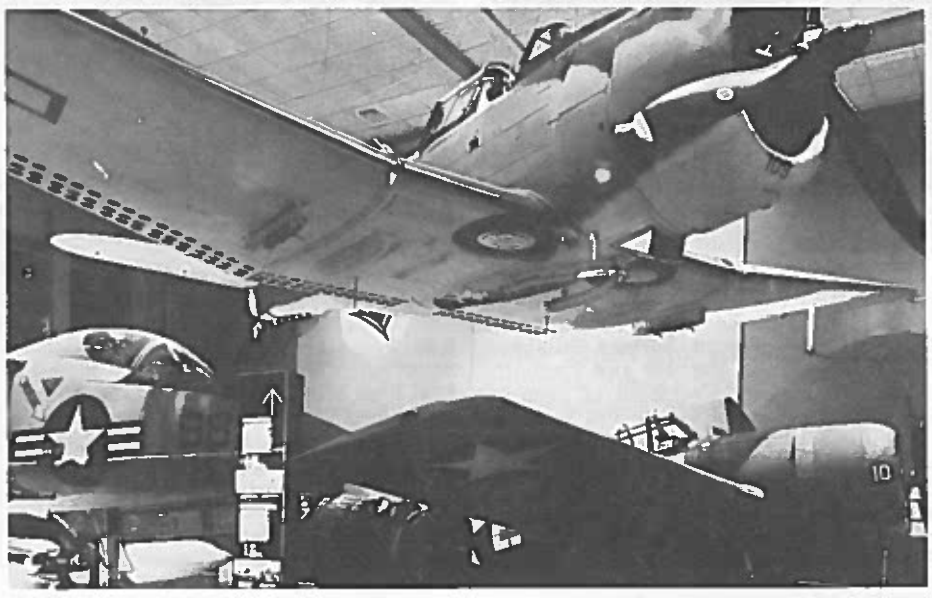
MAGSAT has a key board much like a typewriter, a telephone cradle, and, above the keyboard, a viewing screen for a printout of the message. As the message is being typed, it's electronically coded and sent over the telephone wires. On the receiving end it is translated and displayed on a viewing screen as a printed message or on teletype paper.

Dial 575-2941

Deaf persons can reach this new installation at Grumman by dialing 575-2941. Specially trained members of Personnel Records will receive the message and relay it within Grumman. When necessary, they can also relay a message back to the caller.

For further information about the MAGSAT installation, call Bob Harris, Personnel Relations, Ext. 575-3521.





New museum exhibits everything that flies without feathers

From the first Wright brothers' plane of 1903 to the Skylab Orbital Workshop to a silver of genuine moon rock that visitors can touch, the new Smithsonian Institution's Air and Space Museum offers a treasury of flying machines and exhibits never before assembled in one place.

Many of the contributions Grumman men and women have made to the Nation's progress in aviation are on full view for 50,000 visitors daily.

The Grumman Gulfhawk G-22, circa 1936, resides in the West Gallery. An F3F-2 with F2F-1 wings, the G-22 is in distinguished company—the P-26, P-40, and F-86A fighters. The Gulfhawk was a commercial single-place biplane owned by Gulf Oil Company and flown by Al Williams in exhibitions around the U.S. and Europe.

Representative of Grumman's development from a young aircraft manufacturer in the lean depression years to one of the world's major aerospace companies in the 70s is the Apollo Lunar Module. Located in the West Gallery, the LM faces Capitol Hill.

Get your sea-legs

A visit to the Sea-Air Operations gallery is a must for every member of the Grumman family. The company is well-represented in this exhibit, too, which is designed as a naval aircraft carrier, the *USS Smithsonian*.

Visitors enter through a portal resembling a quarterdeck. Opposite, viewed through an open access-hatch, the sea rushes by (back projected film) creating an illusion of motion.

The ship's museum is the second main area. Located beneath the "island", it features a chronological history of sea-air operations using photos, models and various artifacts.

Cameo appearance

The third area is the most dramatic—a portion of a typical primary flight control area where the "air boss" directs carrier air operations, and a similar arrangement with a navigation bridge for the bow scene. Here, many of the current Grumman stars in the naval air arm are featured in cameo roles.

Before leaving the island, a visitor has the opportunity to "fly" from the ship. In the ready room, a six-minute film depicts a personalized briefing and a pilot's view of flight from the cockpit of an F-14 Tomcat—the latest of Grumman's long line of feline fighters. A catapult shot, air combat maneuvering and air-to-air refueling are climaxed by an arrested landing back aboard the ship.

Most of the film footage (including the F-14 film) used onboard the *USS Smithsonian* was shot by Presentation Services and Aerolog, Inc.

In the "hangar bay" rests the famous WWII Grumman F4F Wildcat. Meticulously restored by members of the Grumman Retiree Club, the Wildcat looks like it just rolled off the production line. Keeping the venerable Grumman naval fighter company in the "bay" are the Dauntless and the Skyhawk.

Of course, there are many more exhibits to explore in this spacious building of glass and marble. Included in the 26 galleries is the Albert Einstein Spacearium, a bicentennial gift from West Germany.

Open 364 days

The Air and Space Museum is open every day except Christmas. Visiting hours are 10 a.m. to 9 p.m. from April 1 through Labor Day, and from 10 a.m. to 5:30 p.m. at other times.

Located on Independence Ave. between 4th and 7th Streets SW in Washington, D.C., the museum has an underground parking lot.

Special tours for blind, deaf, and physically handicapped persons can be arranged by calling (202) 381-4056.

Tomorrow's pilots to fly by info on TV screen

Tomorrow's fighter pilots will watch in-flight TV but not like airline passengers.

Five or six mini screens will displace the numerous dials, gauges, and meters of the traditional cockpit. On board computers will store information for the screens.

All the pilot will have to do is summon the necessary information for a particular mission phase and one or more screens will display it.

How best to display that information is the job of a new Grumman Aerospace facility called the Display Graphics Simulation Laboratory. It checks out and evaluates the many possible methods of displaying computer information on cathode ray tubes which are very similar in appearance to home television screens.

Display screens come in all sizes according to their use. They can range from a seven-inch presentation for cockpit use to a wall-size view for command centers.

Screen displays are made up of symbols, such as pictures, numbers, words, or a combination of them. For example, they are used to provide a pilot with a preflight check-off list, a climbing display that clues in on plane heading, pitch, airspeed, altitude, vertical velocity, and bank scale, or a sketch keyed with landing data.

Dynamic Displays

Each of the screen presentations is active. As the pilot "flies" in the simulated cockpit the altimeter records altitude changes; a heading scale, direction variations; and the airspeed indicator, readout differences.

Display Graphics was started as a function of Grumman Aerospace to service the engineering staff for proposal preparations, advanced development, and product development, says John Hussey, department director. It provides engineers with a tool during the early stages of product creation to try out their preliminary designs with a human test subject. Hussey says the graphics lab can simulate for the engineering staff a "real world" atmosphere in which a product or system can be tested.

The advantage of testing in this manner during the idea stage of developing a product or system is that corrections or alterations in concept can be made before any hardware is produced. This saves costly time and design rework.

New Method

Customarily cockpit displays, for example, are designed by committees of pilots and/or engineers based on personal experience, says Hussey. There is little opportunity for experimental evaluation of the symbols and format of the display before manufacture of the plane.

It's only after the hardware is built and flight tested, he says, that complaints about display problems come to the surface. At this phase of development, recommendations for change result in expensive fixes.

The new approach is to test the selected symbols and formats of a cockpit display in a simulated environment in real time. It's done in real time because if it takes an hour to fly a given mission in the real world, it also takes an hour of clock time to "fly" the same mission in the simulated situation.

In the lab environment this is done by the use of interactive graphic display terminals. The terminals (television screens) display all the usual information needed by a pilot to fly a plane. After the displays are used (interacted with) for flights, display changes are made both according to test pilot recommendations and observations of the graphics human factors engineering group.

Future Cockpit

At such an early level of development, it's only necessary to change the computer input for the symbols on the television screens to make changes in the cockpit display. Since these changes are made before hardware manufacture and actual flight testing, Hussey says there is a considerable cost savings.

In the cockpit of the future the pilot will monitor television screens to operate an aircraft, its onboard systems, and weapons. Computerized displays will replace dials, meters, and gauges.

Hussey says the use of five or six television displays in the cockpit with the massive amount of computer generated information they can present, is a necessity for the next generation of planes. The future workload of advanced avionic systems will be too demanding for the pilot.

Traditionally pilots suffer from lack of information relative to their aircraft and mission, Hussey says, even though there has been a proliferation of instruments as planes have become more sophisticated. Information lack comes from the physical limits of the cockpit that correspondingly limit the number of instruments in the crew station.

However with computer-fed graphic displays, the pilot will have possibly more information than he can use. Because the information is stored in computers and can be called up at the pilot's discretion, literally dozens (possibly even hundreds) of information formats are available for a given television display during a single mission.

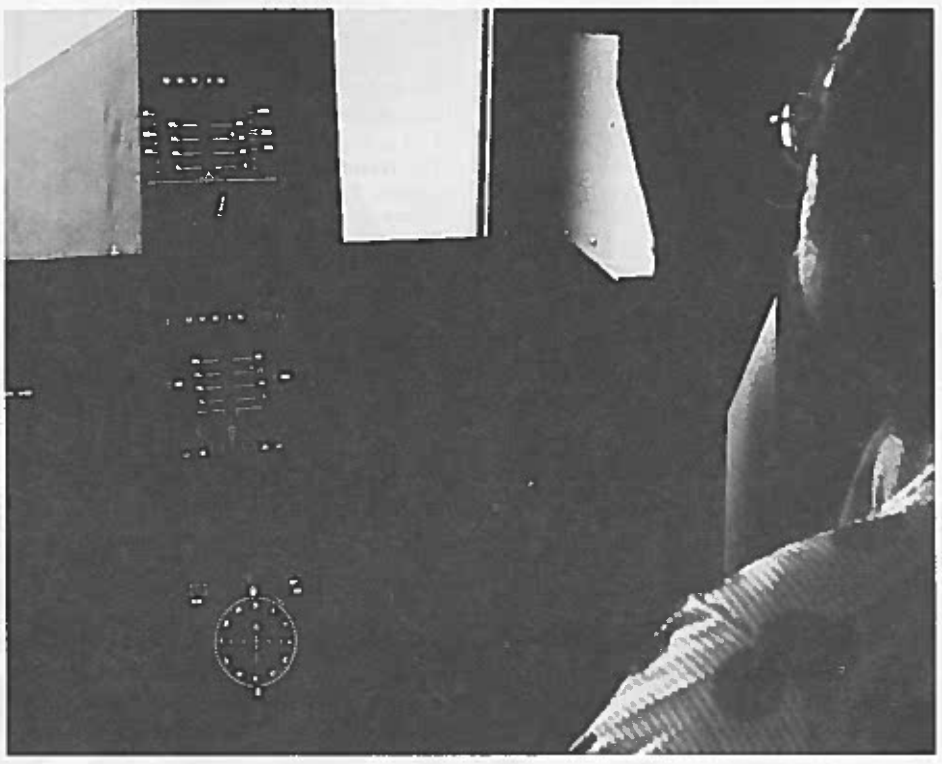
The cathode ray tube with its TV-like screen will some day replace the dials, meters, and gauges of the traditional cockpit, says Hussey. Why? The new technology of the next generation aircraft will provide the crew all it needs to know—right away—and in the best possible way, he says. He calls it a top mating of crew and craft.

retirees

On behalf of their fellow workers, PLANE NEWS salutes the following men and women on their contributions to the company and wishes them well in their retirement. Those who retire in February are:

Leroy Abrams (30), Lawrence T. Bignami (88), Anthony R. Boyle (35), Jerome M. Carroll (44), Frederick G. Cassari (2), George W. Hartman (17), Eleanor Hubbard (5), Stanley Janku (5), Redmond J. Joyce (94), Miael S. Juppe (2), William D. Kirby (2), Joseph S. Kolakowski (2), Joseph A. Lazar (25), Grover A. McCombs (35), Alex Meyer (6), Henry Niemeyer (2), Charles W. Oliver (3), Rudolph Pilnacek (87), Louis Pizzo (2), Howard R. Richhold (3), Paul Risney (3), Homer W. Roberts (3), Lester A. Schwartz (2), Walter E. Soper (6), Reynold J. Tweed (3), Jack Winderman (37), Joseph M. Pagano (2), William J. Brynda (30), Philip E. Brice (25), A. James Zusi (77), and John C. Bednar (5).

TODAY—*Instrument panel of F-14 with usual display of gauges, dials, and meters.*



TOMORROW—*Section of simulated cockpit showing instruments projected on TV-like displays. (Photos by Jim Wagner)*

Pocket Billiards Tourney

Entry Blank

Name ..... Ext. .....

Perm. No. ..... Dept. ..... Plt. .....

Entry Deadline, Friday, February 18
(Forward to GAA Office)

calendar

Alcoholics Anonymous: every Mon., 5 p.m., Plt. 39 classroom 1; closed meetings. Personnel Relations, x3521; **Calverton:** every Mon., 4-5 p.m., Headquarters Building.

Amateur Radio Club: Wed., Feb. 16, 5 p.m., Plt. 28 auditorium; ARRL movies: *Moving Up to Amateur Radio, & Ham's Wide World;* explanation of amateur licensing; demonstration of two-meter FM; coffee & pastry for all. S. Courtney, x2536.

American Production & Inventory Control Society: joint meeting with Society of Manufacturing Engineers.

Chess Club: every Tues., 5 p.m., Plt. 30 cafe; guests welcome. A. Ikonnikow, x2317.

Coin Club (Bethpage): Wed., Feb. 23, 12:15 p.m., Plt. 25 vendor conf. rooms; informal lunchtime meeting. K. Hale, x3717.

GACE Flying Club: Fri., Feb. 11, 5 p.m., Plt. 28 auditorium; regular monthly meeting; all welcome. L. Hahn, x(115)3389.

Grumman Scuba Divers Club: Wed., Feb. 23, 7 p.m., Chateau Restaurant, exit 50 LIE; general membership meeting; guests welcome. W. Holmer, x7336, 293-5089.

Grumman Tennis Club: first Mon. of every month, 5 p.m., Plt. 28 auditorium. F. Campagna, x4605.

Grumman Toastmasters Club: Wed., Feb. 23, 5 p.m., Plt. 25 conf. room 1C; local chapter; regular meeting; guests welcome. T. Smith, x3817.

IEEE Reliability Section: Thurs., Feb. 17, 6 p.m., Schweber Electronics, Exit 40 LIE; local chapter; guest speaker: Mel Kutzin, director of Microprocessors—"Overview of Microprocessors"; reservations reg.; guests welcome, J. Drvostep, x(115)3530.

Retiree Club: Wed., Feb. 23, 1:30 p.m., Holiday Manor; **Florida Mid West:** Thurs., Feb. 17, 11:30 a.m., Fort Cooper Station Restaurant, US 41, Inverness; **Florida Treasure Coast:** Thurs., Feb. 24, 12:30 p.m., Trade Winds Cafe, Fort Pierce; **Florida Suncoast:** Mon., Feb. 28., 11:30 a.m., S&S Cafe, Clearwater.

Rod & Gun Club: every Mon., 2-9:30 p.m., NYS Armory, Riverhead; 1st & 3rd Mon., 8-10 p.m., Naval Reserve Training Center, Huntington; every Tues., 4-9 p.m., Levittown Range; every Thurs., 6-10 p.m., Old Bethpage Club Range, W. Babylon; every Fri., 6-8:30 p.m., Marine HQ Range, Garden City; practice & matches; open to all Grummanites. F. Bannwarth, x7705/C. Reed, x7711.

Society of Logistics Engineers: Feb. 22-25, 6-9 p.m., Holiday Manor, buffet dinner $6.50 pp; LI Chapter #1, Dist. #10; guest speaker to be announced; all welcome. N. McDowell, 752-3448; **workshop:** 5:15-6:00 p.m., Manor Room, Holiday Manor.

Society of Manufacturing Engineers: joint meeting with American Production & Inventory Control Society; Mon., Feb. 14, Musicaro's, 1730 Walt Whitman Rd., off Rte. 110, cocktails 5:30 p.m., dinner 6:30 p.m., ($7.50 pp), speaker 8 p.m.; local chapter; guest speaker: J. Garcia, Combustion Engineering—"Management of Engineering & Materials with Metrics;" guests welcome. N. Heilweil, x2250/B. Lamana, x3947.

Stamp Club: 1st, 2nd, 3rd Wed. of each month, 4:45 p.m., Plt. 30 cafe. S. Hoops, x3926.

The National Secretaries Association (Intl.): Thurs., Feb. 17, Polish Independent Club, Marcy Ave., Riverhead, cocktails 6:30 p.m., dinner 7 p.m., followed by meeting; Twin Forks Chapter; guest speaker: Joe Dawson, P/A manager, GC—"Solar Energy," guests welcome. E. Merten Gaias, x(117)7397.

Pocket billiards tourney begins

Frank Castiglione, last year's GAA pocket billiards champ, has every intention of holding on to his title for another year.

All former champs and upset-aces are invited to try to unseat him in the '77 annual GAA pocket billiards tournament starting Thursday, Feb. 24. Matches will be held every Thursday at 5:15 p.m. at the House of Lords, Plainview.

Mike Cherry, tourney director, says elimination games will be 75 points, one loss and out. When the field is reduced to four contenders, 100-point games will be played, and two losses will decide elimination.

All participants must attend the first session on Feb. 24. Deadline for tournament sign-up is Feb. 18.

scorecard

Mixed Pinehurst players, take heed. Ken and Linda Prager, who already have two golf titles to their credit, were practicing their swing recently at the Doral Country Club in Miami, Fla. After they finished playing the "Blue Monster", they submitted their scores to the resident golf pro. A few days later at a club dinner, they received a trophy for the best mixed twosome scores. Linda says "We didn't even know we had entered a tournament."

Even if they had known it was a tourney, they weren't likely to choke. Ken's a member of Grumman men's varsity golf team, and Linda's an established golfer in the Grumman Women's league.

Kegler notes

Joe Glasser of the Four Dutchmen bowled a 278-656 series for a new Red league season mark ....Lucia Napolitano of the Pubs Mixed league's SCWOPS chopped wood for a 228 game. That's 100 pins over her average. For her feat, she'll receive a century patch from the Women's International Bowling Congress.

Century Mixed League's Mary Kallansrude says Joan Bussolini took high women's series with 494. Jan. 11, '77. Marilyn Cozzette's 552 series is still the season record.

At Rocky Point Lanes, Joe Moore, Grumman Goose League, scrambled the pins for a season record high men's game of 256 while Ray Russo held on to the title of high men's series with 630.

The Shockers of the Aerospace league hold high team series record with 2,238. Joe Gallo reigns as high game king with 245, while Jerry Pless holds high individual series title with 610.

Let the music play

The GAA Calverton Folk Dancers are expanding their lunchtime club activities to include ball room dancing on Wednesdays in addition to Tuesdays and Thursday. Club members can cha-cha and hustle in the Plant 6 Receiving Area. New members are welcome. Contact Emil Urciuolli, Ext. 6688.

BOCCE WINNERS. *Senior Vice President John O'Brien (front row, C) congratulates winners of the '76 Plant 25 bocce ball league. Commissioner Frank Malone (front row, R) beams approval. (Photo by Marie Trimborn)*

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